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JOHN ASHCROFT
Governor

FREDERICK A. BRUNNER
Director



STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL QUALITY

Springfield Regional Office
1155 East Cherokee Street
Springfield, MO 65807
417-883-4033

Division of Energy
Division of Environmental Quality
Division of Geology and Land Survey
Division of Management Services
Division of Parks, Recreation,
and Historic Preservation

HzW/Greene County
Litton
LOW 87-SP.014

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**WASTE MANAGEMENT
PROGRAM**

May 1, 1987

Ms. Lee Payne, Environmental Engineer
Litton Systems-Advanced Circuitry Division
4811 West Kearney
Springfield, MO 65803

Dear Ms. Payne:

Enclosed please find a copy of the inspection report completed pursuant to the Missouri Hazardous Waste Management Law and Regulations. It is believed to be self-explanatory. Litton Systems must demonstrate compliance with each of the recommendations contained in the attached report. To demonstrate compliance, please submit at least the following documents:

- (1) Written certification that a written description of the type and amount of both introductory and continuing training that will be given to each person in a position related to hazardous waste management is on file;
- (2) Written certification that documentation of training given to each person in a position related to hazardous waste management is on file;
- (3) Written certification that the contingency plan includes a list of home addresses of the emergency coordinators.




R00337384
RCRA RECORDS CENTER

Please submit the above-requested documentation by June 1, 1987. If you have any questions, please advise.

Sincerely,

SPRINGFIELD REGIONAL OFFICE


John R. Nixon, P.E.
Administrator

JRN:CLK:GLR:jh

Enclosures

cc: ~~Waste Management Program~~

HAZARDOUS WASTE COMPLIANCE INSPECTION REPORT

Litton Systems-Advanced Circuitry Division
4811 West Kearney
Springfield, Missouri 65803
417/862-0751
EPA ID# MOD007152903
Mo. DNR ID# 01317
Contact: Ms. Lee Payne, Environmental Engineer

INTRODUCTION:

On April 28, 1987, Gale L. Roberts of the Springfield Regional Office/Division of Environmental Quality/Department of Natural Resources conducted a hazardous waste compliance inspection at Litton Systems-Advanced Circuitry Division in Springfield, Greene County, Missouri. Litton manufactures printed circuit boards. The boards are plated with copper, solder (lead-tin) is applied and the boards are etched with ammonium chloride (single layer boards) or cupric chloride (multi-layer boards). Some boards are plated with nickel, then gold.

Hazardous wastes produced in calendar 1986 were 300,460 Kg of F006, Mo. #001 wastewater treatment sludge (metal hydroxide sludge), 3409 Kg of Mo. #002 spent oil, 416,700 Kg of D002, Mo. #004 spent ammonical etchant (NH_4Cl), and 36,300 Kg of D002, Mo. #007 spent cupric chloride etchant. The wastewater treatment sludge was landfilled by Peoria Disposal Company in Peoria, Illinois, the spent oil was recycled by Radium Oil Company in Carthage, Missouri, the spent ammonical etchant and the spent cupric chloride etchant were recycled by Southern California Chemical Company in Garland, Texas. Spent methylene chloride which is used to strip tape from boards after gold plating is sometimes produced and is disposed of by Superior Solvents in Springfield, Missouri, but none was produced in 1986. Spent gold plating solution which contains gold, cobalt, chelators, and cyanide in an acid base is provided by and reclaimed by Lea Ronal Company in Buffalo, New York. The spent gold plating solution drum shipments are manifested and are recyclable materials from which precious metals are obtained (40CFR261.6(a)(2)(iv) and 40CFR266 Subpart F).

Wastewater treatment sludge is a dry powder and is stored and shipped in one ton lifts (one cubic yard bags). Storage is in a roofed area adjacent to the wastewater treatment facility. Spent ammonical etchant is stored in a 5000 gallon tank located inside a building, and is shipped by tank truck. Spent cupric chloride etchant is stored in the machine in which it is used and is shipped by tank truck. Spent oil is stored in a 300 gallon tank located outside surrounded by a very low concrete retaining wall.

Wastewater treatment sludge is produced in the water recycling process and wastewater treatment process. Water recycling processes 225,000 gallons per day of secondary rinse water. The water recycling process consists of sand filtration, carbon filtration, ion exchange, and pH adjustment with NaOH. Backwash from the sand filters and carbon filters and ion exchange regeneration fluids (ion exchange resins are regenerated with sulfuric acid and sodium hydroxide) are transferred to the equalization basin.

Wastewater treatment process consists of batch treatment of concentrated electric and chelated plating solutions by NaOH neutralization then addition of ferrous sulfate. If chelators are present, KMnO_4 is added and sometimes Na_2S is added if the lead content is high. The batch treated solutions are then transferred to the equalization basin where pH is adjusted to 9.5 with NaOH. The solutions then gravity flow to the polymer addition system where polymer is added as a flocculant. The solutions then gravity flow to the clarification basin. Supernate from the clarifier is pumped through back filters, sand filters, activated carbon filters, ion exchange, then discharged to the city of Springfield sewers. All back-washes and ion exchange regeneration fluids (HCl and NaOH are used to regenerate the wastewater treatment ion exchange resins) are returned to the equalization basin. Clarifier bottoms go through the decant tank, filter press, filter cake dryer, and are bagged in cubic yard bags and shipped to Peoria Disposal Company. Supernate from the decant tank, filtrate from the filter press, and condensate from the filter cake dryer are returned to polymer addition.

The following unsatisfactory features were noted during the inspection:

UNSATISFACTORY FEATURES:

- (1) A written description of the type and amount of both introductory and continuing training that will be given to each person in a position related to hazardous waste management was not available as required by 10 CSR 25-5.262(2)(C)2.K.(I) referenced to 40 CFR 264.16(d)(3);
- (2) Records that document training has been given to each person in a position related to hazardous waste management were not available as required by 10 CSR 25-5.262(2)(C)2.K.(I) referenced to 40 CFR 264.16(d)(4);
- (3) The contingency plan did not list the home addresses of the emergency coordinators as required by 10 CSR 25-5.262(2)(C)2.K.(I) referenced to 40 CFR 264.52(d).

COMMENTS:

The hazardous waste training appeared to be rather informal with the environmental engineer reviewing various operating procedures and legal requirements with the operators on the job. This training was not described in writing and was not documented. Litton does have a good program of fire fighting and chlorine safety training.

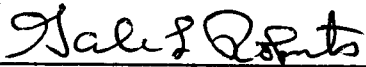
The contingency plan listed emergency coordinator names, home phone numbers, and office phone numbers, but did not list home addresses.

RECOMMENDATIONS:

- (1) Provide a written description of the type and amount of both introductory and continuing training that will be given to each person in a position related to hazardous waste management;
- (2) Document that training has been given to each person in a position related to hazardous waste management;
- (3) Modify the contingency plan to list the home addresses of the emergency coordinators.

SUBMITTED BY:

APPROVED BY:



Gale L. Roberts, P.E.
Environmental Engineer



Charles L. Kroeger
Unit Chief

Name of Facility: Litton System Advanced Circuitry DivisionDate: 04-28-87Address: 4811 West Kearney StreetSpringfield MO 65803Missouri I.D. # 01317Facility Representative: Ms. Lee PayneEPA I.D. # MOD007152903Title: Environmental EngineerPhone Number 417-862-0751Is this facility a TSD? NOTransporter? NO

Provide a brief description of the manufacturing process.

Litton manufactures printed circuit boards. The boards are plated with copper, nickel, or gold, solder (lead-tin) is applied, and the boards are etched with ammonium chloride (single layer boards) or cupric chloride (multilayer boards).

List the hazardous wastes generated:

Waste	Calendar 1986 average Amount/month	Kilogram/month	MO I.D. #	Disposition
1. <u>F006 Wastewater treatment sludge</u>	<u>25.04</u> Kkg/mo	<u>25038</u> Kg/mo	<u>001</u>	<u>Peoria Disposal Co</u> <u>Peoria, ILL</u>
2. <u>Spent oil</u>	<u>83.3</u> gal/mo	<u>284</u> Kg/mo	<u>002</u>	<u>Radium Oil</u> <u>Carthage, MO</u>
3. <u>D002 Spent ammoniacal etchant (SpGr 1.2)</u>	<u>7633</u> gal/mo	<u>34725</u> Kg/mo	<u>004</u>	<u>Southern California Chemical</u> <u>Garland, TX</u>
4. <u>D002 Spent cupric chloride etchant (SpGr 1.1)</u>	<u>725</u> gal/mo	<u>3023</u> Kg/mo	<u>007</u>	<u>Southern California Chemical</u> <u>Garland, TX</u>
5. <u>F002 Spent methylene chloride</u>	<u>0</u>	<u>0</u>	<u>005</u>	<u>Superior Solvents</u> <u>Springfield, MO</u>
6. _____	_____	_____	_____	_____
Total	_____	<u>63070</u> Kg/mo	_____	_____

Annual generation rate for time period of July 1 through June 30:

Total amount of waste generated on an annual basis. 756.84

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Amount of waste land disposed on annual basis. 300.46 kkg.Amount of waste stored under permit conditions on annual basis. 0 kkg.Amount of waste managed by all other methods on annual basis. 456.38 kkg.Is the category tax (Section 260.478 RSMo.) applicable? X yes _____ noIs the tax being paid? X yes _____ noIs the \$25 land disposal tax (Section 260.475 RSMo.) applicable? X yes _____ noIs it being paid? X yes _____ noIs the \$1.00 generator fee applicable? X yes _____ noIs it being paid? X yes _____ no

If the total amount of hazardous waste generated is less than 100 kg/month, is over 100 kg ever accumulated? Yes _____ No _____ DNA

If the total amount of hazardous waste generated is less than 1000 kg/month, is over 1000 kg ever accumulated? Yes _____ No _____ DNA

If 1000 kg is never accumulated, is hazardous waste disposed of within 1 year? Yes _____ No _____ DNA

Has the generator determined if waste is hazardous? Yes X No _____

A. Manifests and Recordkeeping 10 CSR 25-5.262(1) and 5.262(2)(B) and (D)

1. Generator's MO and EPA I.D. Numbers(✓)
2. Serially Increasing shipment number(✓)
3. MO waste I.D. # correct.....(✓)
4. Generator's name, address, phone #.....(✓)
5. All transporters' names, phone #'s, MO and EPA I.D. #'s.....(✓)
6. Designated facility name, address, phone # and EPA I.D. #.....(✓)
7. Proper DOT Shipping Name, Hazard Class and I.D. #.....(✓)
8. Containers, Quantity and Unit Wt/Vol being shipped properly designated.....(✓)
9. Proper certification.....(✓)
10. Manifest properly signed and dated.....(✓)
11. No more than 10 days time between generator and facility signatures.....(✓)
12. Manifests returned within 35 days.....(✓)
13. If not, exception generator report submitted within 45 days.....DNA.....()
14. Completed manifests submitted to DNR quarterly.....(✓)
15. Summary Manifests Report submitted to DNR quarterly.....(✓)
16. Biennial Report.....(✓)

B. PRETRANSPORT, CONTAINERIZATION AND LABELING 10 CSR 25-5.262(1) and 5.262(2)(C)1

17. Waste stored in proper DOT containers.....one ton lifts (4³ bags).....(✓)
18. Containers/Tanks labeled "Hazardous Waste" and labeled per proper DOT requirements during storage.....(✓)
19. Placards available for use by transporters.....(✓)

C. STORAGE STANDARDS 10 CSR 25-5.262(1) and 5.262(2)(C)2

20. Facility inspected and maintained.....(✓)
21. Ignitable and reactive wastes properly handled.....DNA.....()
22. Date of accumulation marked.....(✓)
23. Storage less than 90 days (if applicable).....(✓)
24. Satellite Accumulation requirements met (if applicable).....DNA.....()
 - a. Stored in satellite areas less than 1 year.....()
 - b. Container marked identifying contents and beginning date.....()
 - c. Containers kept closed / compatible / good condition.....()
 - d. Quantities accumulated not exceeding 55 gal. (1 quart acutely hz waste).....()

D. CONTAINER STORAGE 10 CSR 25-5.262(1) and 5.262(2)(C)2

25. Containers in good condition.....(✓)
26. Containers kept closed in storage.....(✓)
27. Containers storing incompatible waste separated or protected from each other.....DNA.....()
28. Containers of ignitable or reactive waste stored > 50 feet from property line.....DNA.....()
29. Containers stored within a containment system (if applicable) meeting criteria of 10 CSR 25-5.262(2)(C)2.E.....DNA.....()

E. STORAGE TANKS 10 CSR 25-5.262(1) and 5.262(2)(C)2.F.

30. Tanks in good condition.....(✓)
31. Procedure for assessing condition of tanks.....(✓)
32. Above ground tanks - adequate spill confinement systems / inspected weekly.....(✓)
33. Underground tanks that cannot be entered have adequate leak detection systems.....DNA.....()
34. Leak detection procedure and schedule developed and used.....DNA.....()
35. Open tanks have _____ ft. freeboard.....DNA.....()
36. Incompatible wastes stored safely and properly.....DNA.....()
37. Volatiles are not placed in open tanks.....DNA.....()
38. Ignitable or reactive wastes stored safely and properly.....DNA.....()

39. Ignitable or reactive wastes in covered tanks stored in accordance with NFPA's buffer zone requirements.....DNA.....()

40. Controls to prevent overfilling.....(✓)
41. Daily inspection of overfilling control equipment.....(✓)
42. Daily inspection of freeboard in uncovered tanks.....DNA.....()
43. Covered in contingency plan.....(✓)

HAZARDOUS WASTE STORAGE TANKS

WASTE CONTAINED	VOLUME OF TANK
Spent NH ₄ Cl etchant	5000 gallons
Spent oil	300 gal./lms

For storage or generation in any month of over 1000 kg, complete the following additional three sections:

F. PERSONNEL TRAINING 10 CSR 25-5.262(1)

44. Completed classroom or on-the-job training.....(✓)
45. Job title, description, and name of person filling position.....(✓)
46. Written record of the type and amount of training given.....()
47. Documentation confirming that training has been given.....()

G. PREPAREDNESS AND PREVENTION 10 CSR 25-5.262(1) and 5.262(2)(C)2.H.

48. Internal communication or alarm system.....(✓)
49. Device in the hazardous waste operation area capable of summoning emergency assistance.....(✓)
50. Fire control, spill control, and decontamination equipment available.....(✓)
51. Adequate water supply for fire control equipment.....(✓)
52. Adequate and proper safety equipment available.....(✓)
53. Adequate aisle space.....(✓)
54. Arrangements with local emergency agencies.....(✓)

H. CONTINGENCY PLAN AND EMERGENCY PROCEDURES 10 CSR 25-5.262(1)

54. Contingency Plan.....(✓)
55. Detailed description of procedures that personnel must implement in response to fires, explosions, or release of hazardous waste.....(✓)
56. Describe formal arrangements with emergency agencies.....(✓)
57. Names, addresses, and phone numbers (home & office) of emergency coordinators.....()
58. Emergency equipment including its description and location.....(✓)
59. Evacuation plan if applicable.....(✓)

I. WASTE OIL 10 CSR 25-11.010

60. Waste oil properly handled.....(✓)

COMMENTS:

Please mark boxes as shown (✓) In compliance

Inspector's Signature Wale P Roberts In violation

Title Environmental Engineer

Office Springfield